

**Pre-Calc: CH5 Practice Test**

**Name:**

1. Simplify.

$$\sqrt{36 - x^2}, \quad x = 6 \sin \theta$$

2. Simplify the expression to a single term.

$$\sec^2 x \cot x - \cot x$$

3. Simplify the expression to a single term.

$$(1 - 2 \sin^2 \theta)^2 + 4 \sin^2 \theta \cos^2 \theta$$

4. Find all solutions in the interval  $[0, 2\pi)$  without using a calculator. Give exact answers.

$$\sin^2 x - 2 \sin x - 3 = 0$$

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5. Prove the identity.

$$\frac{\cos(x)}{\sec(x) - \tan(x)} = 1 + \sin x$$

6. Prove the identity.

$$\sin^3 x \cdot \cos^2 x = \sin x \cdot (\cos^2 x - \cos^4 x)$$

7. Find all solutions in the interval  $[0, 2\pi)$  without using a calculator. Give exact answers.

$$\tan^2 x = -\tan x$$

8. Find all solutions in the interval  $[0, 2\pi)$  without using a calculator. Give exact answers.

$$\sin^2 x - 2 \sin x - 3 = 0$$

9. Determine the unknown measures of  $\triangle ABC$ .

$$A = 79^\circ, B = 33^\circ, a = 7$$

10. Determine the unknown measures of  $\triangle ABC$ .

$$A = 85^\circ, a = 6, b = 4$$

11. Find the area of  $\triangle ABC$ .

$$a = 10, b = 6, C = 50^\circ$$

12. Find the area of  $\triangle ABC$ .

$$a = 3, b = 5, c = 6$$

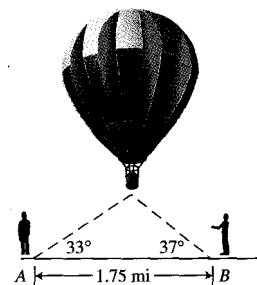
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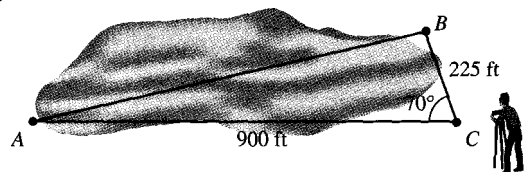
13. If  $a = 12$  and  $B = 28^\circ$ , determine the values of  $b$  that will produce the indicated number of triangles.

- (a). Two      (b). One      (c). Zero

14. A hot-air balloon is seen simultaneously by two observers at point A and B that are 1.75 miles apart on level ground and in line with the balloon. The angles of elevation are as shown. How high above the ground is the balloon?



15. In order to determine the distance between two points A and B on opposite sides of a lake, a surveyor chooses a point C that is 900ft from A and 225ft from B, as shown. If the measure of the angle at C is  $70^\circ$ , find the distance between A and B.



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